

Zhx3 Cas9-KO Strategy

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Project Overview

Project Name

Zhx3

Project type

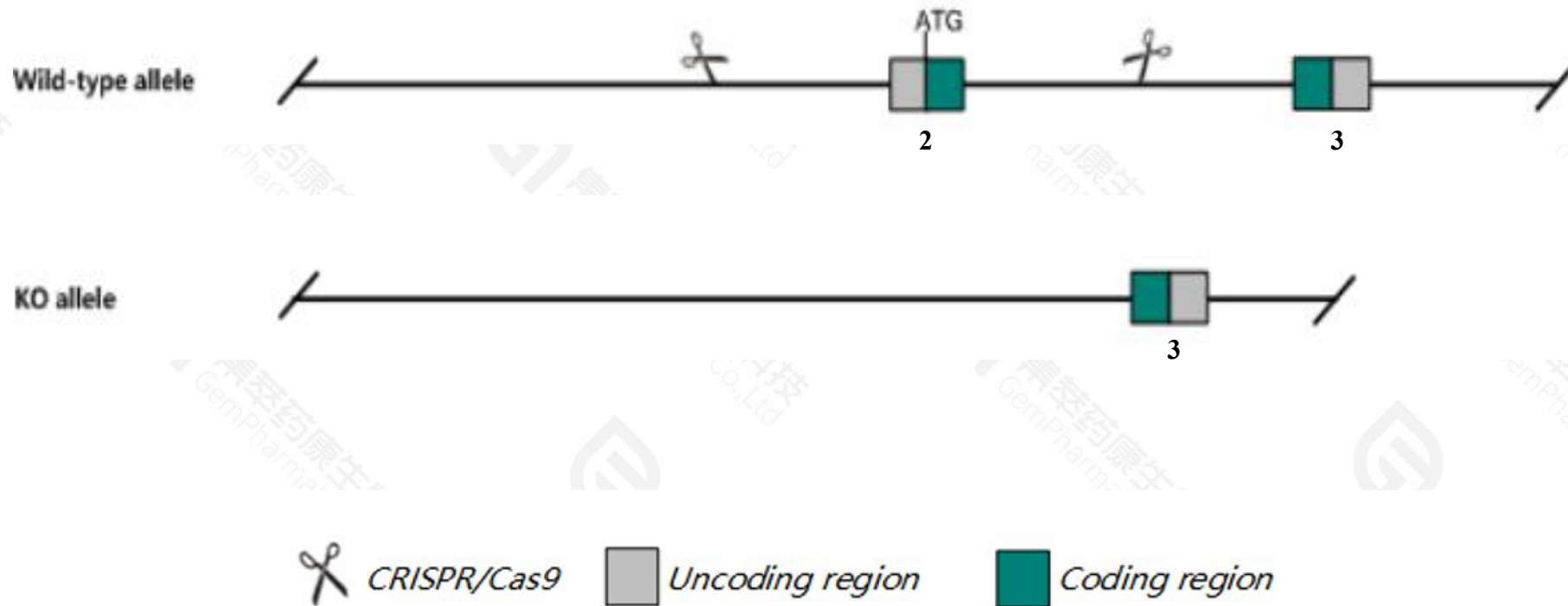
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zhx3* gene. The schematic diagram is as follows:



Technical routes

- The *Zhx3* gene has 6 transcripts. According to the structure of *Zhx3* gene, exon2 of *Zhx3-201*(ENSMUST00000103111.9) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Zhx3* gene. The brief process is as follows: CRISPR/Cas9 system were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

- The *Zhx3* gene is located on the Chr2. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.
- This strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Zhx3 zinc fingers and homeoboxes 3 [Mus musculus (house mouse)]

Gene ID: 320799, updated on 17-Nov-2020

Summary



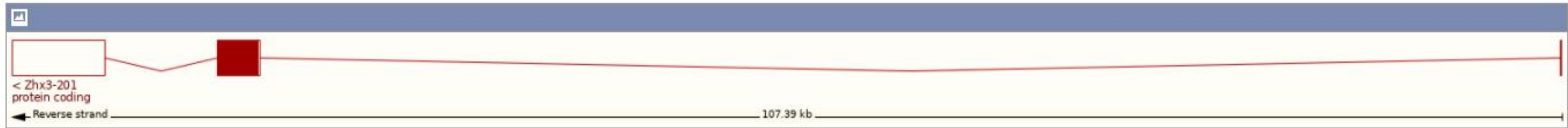
Official Symbol	Zhx3 provided by MGI
Official Full Name	zinc fingers and homeoboxes 3 provided by MGI
Primary source	MGI:MGI:2444772
See related	Ensembl:ENSMUSG00000035877
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1810059C13Rik, 4932418O04Rik, 9530010N21Rik, Tix, Tix1, mKIAA0395
Expression	Ubiquitous expression in testis adult (RPKM 19.3), kidney adult (RPKM 7.4) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

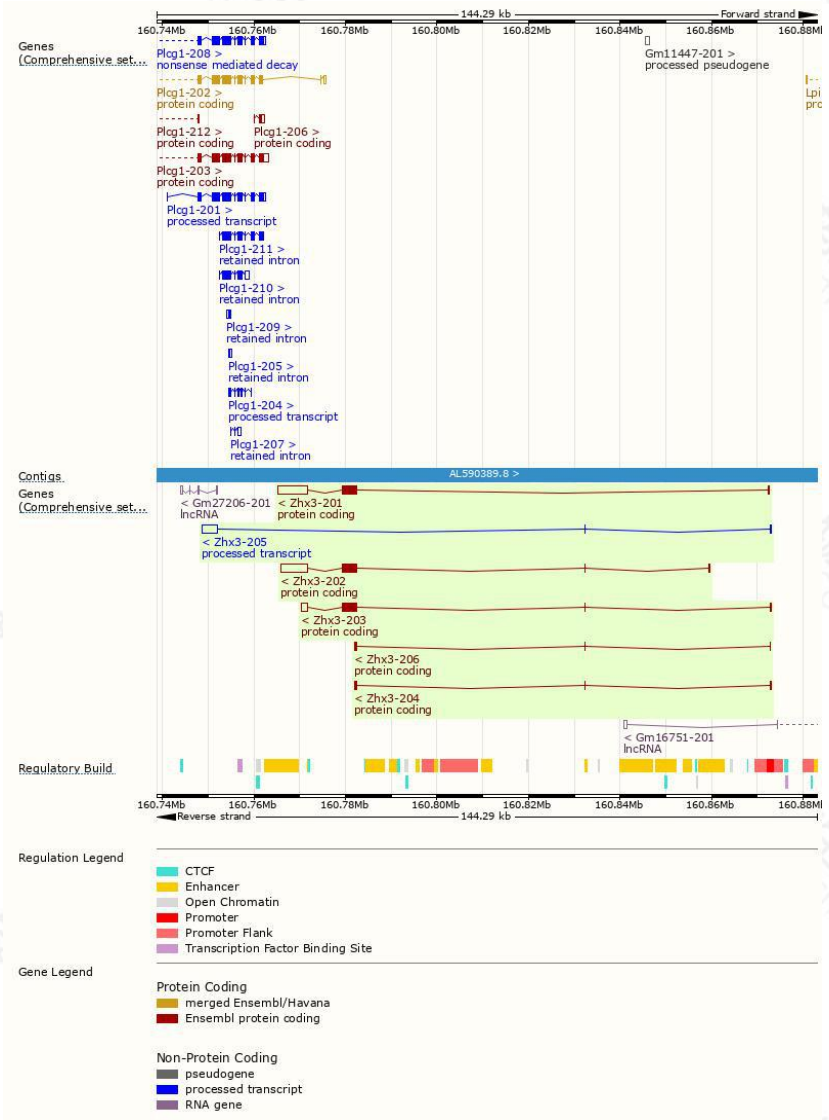
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zhx3-201	ENSMUST00000103111.9	9563	951aa	Protein coding	CCDS16997		TSL:1 , GENCODE basic , APPRIS P1 ,
Zhx3-202	ENSMUST00000103112.8	9109	951aa	Protein coding	CCDS16997		TSL:1 , GENCODE basic , APPRIS P1 ,
Zhx3-203	ENSMUST00000109460.8	4480	951aa	Protein coding	CCDS16997		TSL:1 , GENCODE basic , APPRIS P1 ,
Zhx3-204	ENSMUST00000127201.2	761	101aa	Protein coding	-		CDS 3' incomplete , TSL:2 ,
Zhx3-206	ENSMUST00000176141.8	637	114aa	Protein coding	-		CDS 3' incomplete , TSL:2 ,
Zhx3-205	ENSMUST00000133937.9	3532	No protein	Processed transcript	-		TSL:2 ,

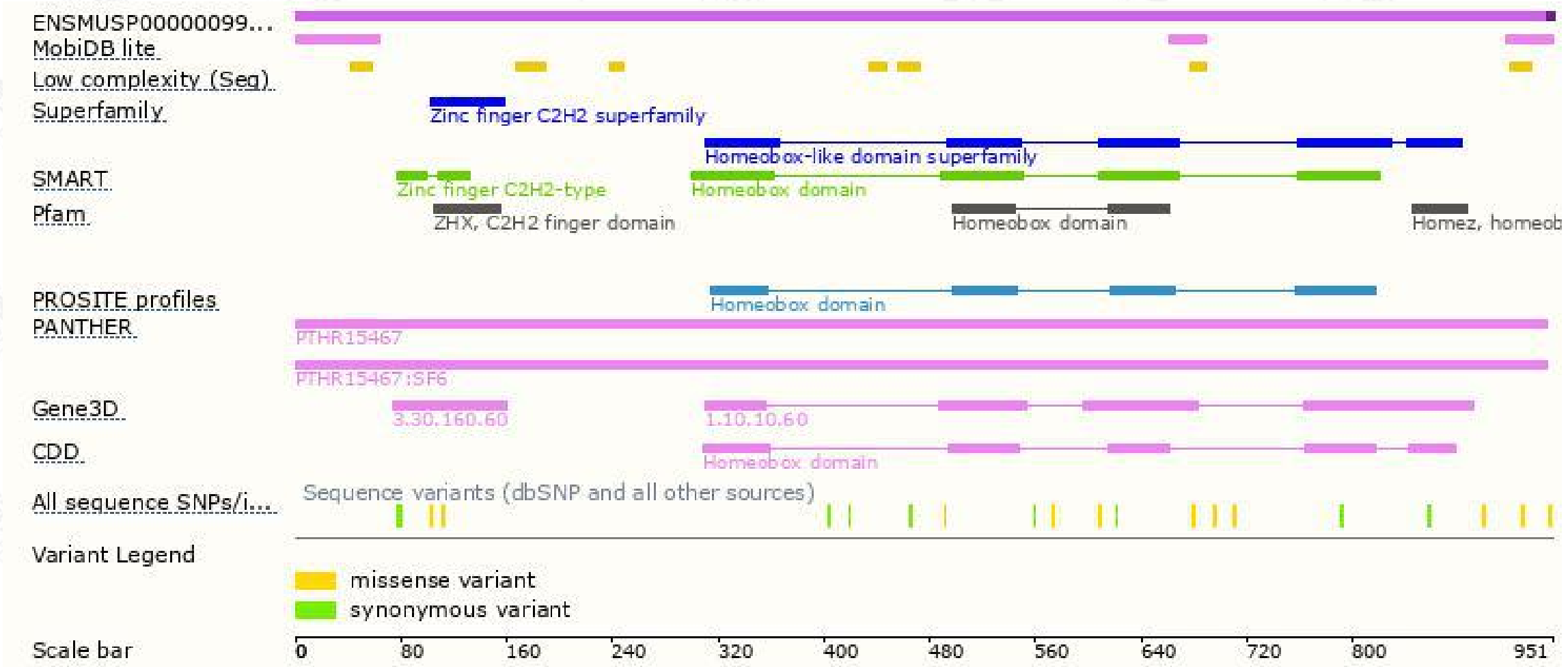
The strategy is based on the design of *Zhx3-201* transcript,the transcription is shown below:



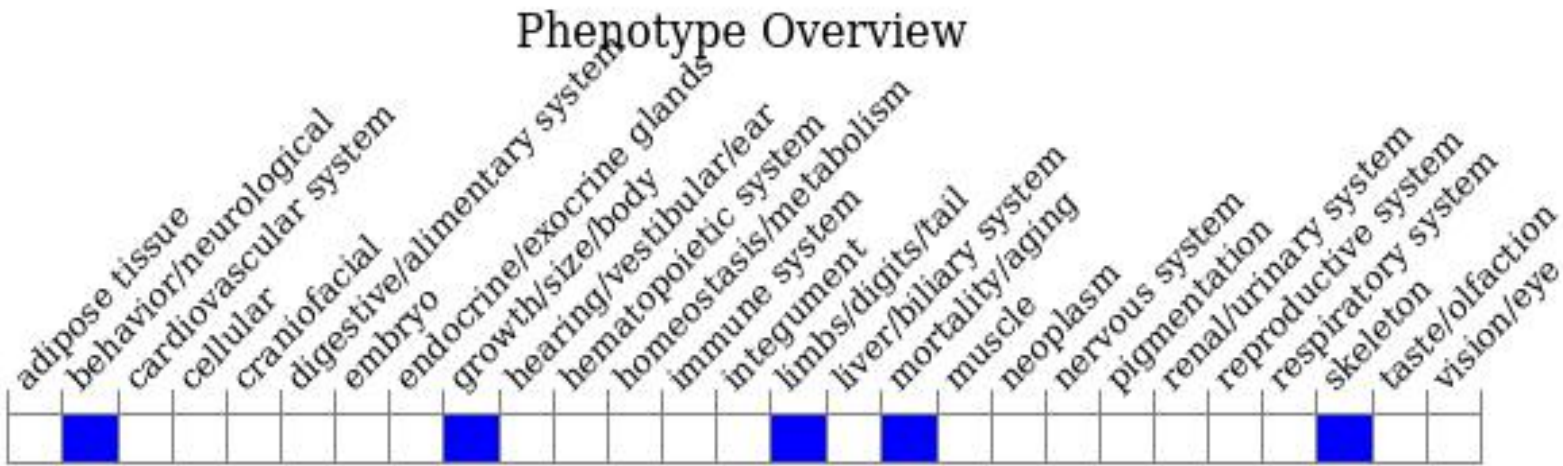
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(<http://www.informatics.jax.org/>).

If you have any questions, you are welcome to inquire.
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